

ABSTRACT

A filter membrane, methods of making such filter membrane and apparatus employing such filter membrane are disclosed, in which the filter membrane is a monolithic polymeric membrane that includes a polymeric filter layer including a micron-scale precision-shaped pores and a polymeric support layer that has a precision-shaped porous support structure for the filter layer. Several methods are disclosed for making such a membrane using micromachining techniques, including lithographic, laser ablation and x-ray treatment techniques. Several filter apparatus employing such a membrane are also disclosed.